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reappeared and disappeared in so unusual a way that I watched it more closely. It was oval in form, the longer axis parallel to the horizon, bright in the central part and fading out gradually at the border. It filled the comparatively vacant space to the east of *a* Capricorni, and was perhaps five or six degrees in length. After some time I satisfied myself that it could not be a cloud from the facts that it did not obscure the stars, one or two of which were on its boundary; that it was, at brightest, twice as bright as the Milky Way; that it brightened up and disappeared again too rapidly, and was apparently almost fixed in position. In the latter feature and in its regularity of outline it also differed from any aurora I have ever seen. Toward the close of the exhibition it moved a little to the west, so that its last appearance was nearly central over *a* Capricorni. It last showed itself about 8<sup>h</sup>30<sup>m</sup>. It must, therefore, have lasted in all at least 40 minutes, during which time it brightened up and nearly or quite disappeared again perhaps ten or twenty times. A noteworthy feature was that there was nothing like an auroral streamer and no aurora elsewhere, unless an extremely faint, fixed illumination of the sky along the north horizon was such.

Quite likely it was an auroral beam seen end on. If so, it affords one of the best opportunities that have ever occurred to determine the height and length of such a beam. I, therefore, describe the phenomenon in the hope that it may have been seen and its position noted in other parts of the country.

SIMON NEWCOMB.

HARPER'S FERRY, W. VA.,  
September 12, 1898.

#### SCIENTIFIC LITERATURE.

*Essays on Museums and Other Subjects Connected with Natural History.* By SIR WILLIAM HENRY FLOWER, K. C. B. London, Macmillan & Co., Limited; New York, The Macmillan Company. 1898. Pp. xv + 394.

Although the *Essays on Museums* form but a quarter of the bulk of this volume, they not unnaturally are accorded the first place on the title-page and form the opening chapters of the book. As Director in turn of the Museum of

the Royal College of Surgeons and of the British Museum of Natural History, Sir William Flower has had an acquaintance with museums accorded to few, while his words have an additional value from the fact that he was practically the first to recognize the duties of a museum to the public and the important educational rôle it should be made to play. As he says: "The idea that the maintenance of a museum was a portion of the public duty of the State, or of any municipal institution, had, however, nowhere entered the mind of man at the beginning of the last century." And he might have added that there are some who still think the principal, if not the sole, object of museums should be the accumulation of material for the use of private individuals.

In this connection it is somewhat surprising to find the late Dr. J. E. Gray quoted as stating that the purposes of a museum are two: "first, the diffusion of instruction and rational amusement among the mass of the people; and, secondly, to afford the scientific student every possible means of examining and studying the specimens of which the museum consists."

"The first consideration in establishing a museum, large or small," says Professor Flower, "is that it should have some definite object or purpose to fulfil; and the next is that means should be forthcoming not only to establish, but also to maintain the museum in a suitable manner to fulfil that purpose. Some persons are enthusiastic enough to think that a museum is in itself so good an object that they have only to provide a building and cases and a certain number of specimens, no matter exactly what, to fill them, and then the thing is done; whereas the truth is the work has only then begun. What a museum really depends on is not its building, not its cases, not even its specimens, but its curator." And great stress is laid upon the fact that the care and administration of a museum, and its efficiency as an educational factor in a community, demands not only especial knowledge and training, but an inborn fitness for the work, and that these in turn are worthy of their due remuneration. In addition to skill, education, manual dexterity and good taste the museum curator should possess various moral qualifications not found in every professional man—punctuality, habits of

business, conciliatory manners, and, above all, indomitable and conscientious industry in the discharge of the small and somewhat monotonous routine duties which constitute so large a part of a curator's life." No one not familiar with the requirements of a large public museum could have put the case so graphically, nor would he have added: "Such being the requirements of the profession, what are the inducements offered to me to take it up as a means of livelihood?" And in answer to this Sir William quotes some examples of the 'inducements' offered, which in many cases are small enough, and to us, on this side of the water, where museum work is beginning to be better appreciated, even pitifully small. And, again, we read that "museums do not grow of themselves; money, time, knowledge and loving and sympathetic care must be expended upon them," and that "a museum must have an endowment adequate to defray its expenses and especially to ensure the staff of intelligent, educated and paid curators required to maintain it in a state of efficiency." All of which comes with unusual force from one who had drawn one of the few great prizes in museums, but who nevertheless realized the general inadequacy of museum salaries.

As regards the exhibition part of a museum the ground is well taken that the number of objects should be limited, but that every care should be taken in their selection, preparation and installation, and a plea is entered for the 'sadly-neglected art of taxidermy.' While it is to be borne in mind that this plea was made nearly ten years ago, it is a plea that will stand reiteration for some time to come. The advocacy of the concentration of type specimens in large museums will commend itself to all workers, for while it may sound well to have it said that this and that institution possesses such and such types the student can well appreciate the boon of having them concentrated.

Local, School and Boys' Museums are each the subject of an essay, and each contains many valuable ideas, while the concluding paper of the museum series, though first in point of time, is devoted to the history of the Museum of the Royal College of Surgeons. The evolution of this great institution from the collections left

by John Hunter is described at length, and while the museum owes its existence to the untiring zeal and industry of Hunter, yet we learn that in housing, caring for and adding to the Hunterian collection the College of Surgeons has expended over \$2,000,000.

In connection with the papers on museums Professor Flower pays tribute to the memory of Dr. G. Brown Goode, whose energy and devotion have done so much to advance the standards of museum methods in the United States.

Among the essays on subjects other than museums that on 'The Paleontological Evidence of Gradual Modification of Animal Forms' may still be read with profit, notwithstanding that since it was written, some twenty-five years ago, there has been a great accumulation of facts, especially through the labors of American paleontologists.

'Fashion in Deformity' will probably lead in favor among the anthropological papers, although all are interesting and instructive reading.

'Whales and Whale Fisheries,' the most recent of all, is a most admirable *résumé* of the subject; and the history of the southern whale fishery, now being repeated in the Arctic, shows well that no animal is too large nor its pursuit too difficult to prevent its extermination if only there is a little money in it.

While we can but regret the loss to science through the enforced period of restraint from active occupation noted in the opening lines of the preface, yet the bringing together and issuing of this volume of essays is at least some small compensation to the public.

F. A. L.

#### NEW BOOKS.

*Infinitesimal Analysis: Vol. I. Elementary: Real Variables.* WILLIAM BENJAMIN SMITH. New York and London, The Macmillan Company. 1898. Pp. xv + 352. \$3.25.

*The Groundwork of Science: A Study in Epistemology.* ST. GEORGE MIVART. New York, G. P. Putnam's Sons; London, Bliss, Sands & Co. 1898. Pp. xviii + 328.

*Die Chemie im täglichen Leben.* LASSAR-COHN. Hamburg und Leipzig, Leopold Voss. 1898. 3d Edition. Pp. vii + 317.